



**The POLICY Project**

# **The Economic Impact of AIDS in Congo (DRC)**

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AIDS has the potential to create severe economic impacts in many African countries. It is different from most other diseases because it strikes people in the most productive age groups and is essentially 100 percent fatal. The effects will vary according to the severity of the AIDS epidemic and the structure of the national economies. The two major economic effects are a reduction in the labor supply and increased costs:

#### Labor Supply

- The loss of young adults in their most productive years will affect overall economic output
- If AIDS is more prevalent among the economic elite, then the impact may be much larger than the absolute number of AIDS deaths indicates

#### Costs

- The direct costs of AIDS include expenditures for medical care, drugs, and funeral expenses
- Indirect costs include lost time due to illness, recruitment and training costs to replace workers, and care of orphans
- If costs are financed out of savings, then the reduction in investment could lead to a significant reduction in economic growth

<b>LABOR FORCE STATISTICS</b>		
	<b>Employment: 1984</b>	
<b>Sector</b>	<b>'000s</b>	<b>%</b>
<b>AGRICULTURE</b>	291	53.6
<b>INDUSTRY</b>	69	12.7
<b>SERVICES</b>	183	33.7
<b>TOTAL EMPLOYED</b>	<b>543</b>	<b>100.0</b>

Wage employment accounted for approximately 30% of the total population in 1984, which was estimated to be 1.8 million people in the 1984 census. The

population is estimated to be 2.7 million in 1997. Agriculture accounts for a significant amount of wage employment in Congo, at 53.6% of total employment, but contributed only 10% of GDP in 1997. Forestry is also a major activity, as 57% of Congo's land area is covered by forest. Industry, including mining, accounted for 57% of GDP in 1997, with petroleum and petroleum products contributing 84.6% of total export earnings. The country is rich in natural resources; currently, the country produces natural gas, lead, zinc, gold, copper, and magnesium, and has other resources not exploited to date.<sup>1</sup>

The economic effects of AIDS will be felt first by individuals and their families, then ripple outwards to firms and businesses and the macro-economy. This paper will consider each of these levels in turn and provide examples from Congo to illustrate these impacts.

<sup>1</sup> Europa World Year Book 1999, Volume 1 (1999) Europa Publications Limited (London).

## **Economic Impact of AIDS on Households**

The household impacts begin as soon as a member of the household starts to suffer from HIV-related illnesses:

- Loss of income of the patient (who is frequently the main breadwinner)
  - Household expenditures for medical expenses may increase substantially
  - Other members of the household, usually daughters and wives, may miss school or work less in order to care for the sick person
  - Death results in: a permanent loss of income, from less labor on the farm or from lower remittances; funeral and mourning costs; and the removal of children from school in order to save on educational expenses and increase household labor, resulting in a severe loss of future earning potential.
- Recent data show that the cost of treating an AIDS-related condition, cryptococcal meningitis, was \$870 in Congo, several times higher than per capita income. Even though the treatment was the most expensive, advanced treatment, only 150 additional days of life were gained. Thus few families would choose to undertake the treatment, even if it were widely available.<sup>2</sup>
  - An early longitudinal study on the status of orphans due to AIDS deaths found that there was no health or socioeconomic impact on their status, because the extended family was able to care for them.<sup>3</sup> This pattern was not observed, however, in a longitudinal study that performed home visits to evaluate the welfare of AIDS orphans. This study found that, although the orphans were living with relatives, the relatives could not meet their health care and education expenditure needs.<sup>4</sup>
  - An early study of the impact of medical expenditures to care for children with AIDS in 33 families in Kinshasa found that the cost for an average hospital stay of 25 days was 11,500 Zaires (US\$90) in 1987. Hospitalization costs were 26% of the total costs, drugs and I.V. treatment were 57%, and lab tests were 17% of the total bill. This figure compares to an average monthly income in the sample of 3,750 Zaires (US\$30). Subsequent research found that the families had spent US\$109 on medical treatment before going to the hospital, compared to US\$54 for non-AIDS patients. The cost of a funeral for the 21 percent of the cases that died in the hospital was 40,000 Zaires (US\$320), or about 11 months of income for the average household.<sup>5</sup>

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<sup>2</sup> Squire, L. (1998) "AIDS: an economic perspective," *AIDS Analysis Africa*; 8(4): August 1998.

<sup>3</sup> Ryder, RW, M Kamenga, M Nkusu, V Batter, and WL Heyward. (1994) "AIDS orphans in Kinshasa, Zaire: Incidence and socioeconomic consequences," *AIDS* 8(5):673-79, originally in *Int Conf AIDS* 1991;7(1):71 (abstract no. TU.D.59).

<sup>4</sup> Matela, B, N Muniaka, M Nsuami, K Mandala, N Nzila, M Kamenga (1993) "AIDS orphans impact on African families, in Kinshasa, Zaire," *Int Conf AIDS*; 9(1):76 (abstract no. WS-B33-6).

<sup>5</sup> Davachi, F, P Baudoux, K Ndoko, B N'Galy, and J Mann (1988) "The Economic Impact of Families of Children with AIDS in Kinshasa, Zaire." In Fleming, AF, M Carballo, DW FitzSimons, MR Bailey, and J Mann, ed. (1988) *The Global Impact of AIDS*. Alan R Liss, New York: NY; Hassig, SE, J Perriens, E Baende, M Kahotwa, K Bishagara, N Kinkela and B Kapita (1990) "An analysis of the economic impact of HIV infection among patients at Mama Yemo Hospital, Kinshasa, Zaire." *AIDS* 4:883-887.

## **Economic Impact of AIDS on Agriculture**

Agriculture is the largest sector in most African economies accounting for a large portion of production and a majority of employment. Studies done in Tanzania and other countries have shown that AIDS will have adverse effects on agriculture, including loss of labor supply and remittance income. The loss of a few workers at the crucial periods of planting and harvesting can significantly reduce the size of the harvest. In countries where food security has been a continuous issue because of drought, any declines in household production can have serious consequences. Additionally, a loss of agricultural labor is likely to cause farmers to switch to less-labor-intensive crops. In many cases this may mean switching from export crops to food crops. Thus, AIDS could affect the production of cash crops as well as food crops.

## **Economic Impact of AIDS on Firms**

AIDS may have a significant impact on some firms. AIDS-related illnesses and deaths to employees affect a firm by both increasing expenditures and reducing revenues. Expenditures are increased for health care costs, burial fees and training and recruitment of replacement employees. Revenues may be decreased because of absenteeism due to illness or attendance at funerals and time spent on training. Labor turnover can lead to a less experienced labor force that is less productive.

Factors Leading to Increased Expenditure	Factors Leading to Decreased Revenue
Health care costs	Absenteeism due to illness
Burial fees	Time off to attend funerals
Training and recruitment	Time spent on training
	Labor turnover

- A study of a textile mill in Kinshasa found that the highest rate of HIV prevalence was discovered in the managers, followed by the foremen, with the lowest rates found in the workers. Thus the effect of HIV/AIDS will be felt most strongly in the more highly skilled workers, who are more difficult to replace.<sup>6</sup>
- In 1990, large corporations in Congo were required to provide health benefits to their employees and to the families of the employees. A study evaluated the impact of HIV infection on the costs of health care for a large bank in Kinshasa by examining medical records of 90 HIV-positive employees. The evidence indicated that health care utilization increased substantially for these employees over time, and consequently so did health care costs for the company.<sup>7</sup>

<sup>6</sup> PHNFlash Issue 58, Feb 22, 1995, "The Economic Impact of AIDS," found at website <http://www.worldbank.org/html/extdr/hnp/hddflash/issues/00075.html>

<sup>7</sup> Mposo, N, S Bertozzi, M Kamenga, A Doppagne, B Engel, and R Ryder (1990) "Large increase in health care utilization by HIV infected employees at a commercial bank in Kinshasa, Zaire," Int Conf AIDS; 6(1):172 (abstract no. Th.D.218).

For some smaller firms the loss of one or more key employees could be catastrophic, leading to the collapse of the firm. In others, the impact may be small. Firms in some key sectors, such as transportation and mining, are likely to suffer larger impacts than firms in other sectors. In poorly managed situations the HIV-related costs to companies can be high. However, with proactive management these costs can be mitigated through effective prevention and management strategies.

### **Impacts on Other Economic Sectors**

AIDS will also have significant effects in other key sectors. Among them are health, transport, mining, education and water.

- **Health.** AIDS will affect the health sector for two reasons: (1) it will increase the number of people seeking services and (2) health care for AIDS patients is more expensive than for most other conditions. Governments will face trade-offs along at least three dimensions: treating AIDS versus preventing HIV infection; treating AIDS versus treating other illnesses; and spending for health versus spending for other objectives. Maintaining a healthy population is an important goal in its own right and is crucial to the development of a productive workforce essential for economic development.
- An early study using 1987-88 US dollars as a numeraire found that the direct cost of treating an adult varied between US\$132 and US\$1585. The lower cost was relevant if the person was using the urban or rural “health zone” system, while the higher cost was calculated based on utilization of the higher-priced private health care system. These costs are the total costs of caring for a person, that is, they include costs paid by households, government, and charitable health systems. The annual GNP per capita figure at this time was US\$170.<sup>8</sup>
- The cost of caring for infants with and without HIV was compared during a 12-month period over 1987/88. All costs were paid by the research team, rather than the families, so financial constraints were not considered when making treatment choices. Three groups of infants were treated: Group I, those who were HIV-positive; Group II, those with HIV-positive mothers but who were HIV-negative; and Group III, those who were HIV-negative and whose mothers were HIV-negative, the control group. Medical costs were 64% higher for the children in Group I compared to Group III, and 48% higher compared to Group II.<sup>9</sup>

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<sup>8</sup> Over, M S Bertozzi, J Chin, B N’Galy, K Nyamuryekung’e (1988) “The Direct and Indirect Cost of HIV Infection in Developing Countries: The Cases of Zaire and Tanzania.” In Fleming, AF, M Carballo, DW FitzSimons, MR Bailey, and J Mann, ed. (1988) *The Global Impact of AIDS*. Alan R Liss, New York: NY.

<sup>9</sup> Mooso, N, B Engel, S Bertozzi, S Hassig, R Ryder (1989) “Prospective quantification of the economic and morbid impact of perinatal HIV infection (PI) in a cohort of 245 Zairian infants born to HIV(+) mothers,” *Int Conf AIDS*; 5:1033 (abstract no. T.H.O.8).

- Blood transfusions are common in Congo, particularly for anemic children. A 1990 study found an HIV prevalence rate of 20% for children who had sickle-cell anemia, which requires transfusions for treatment. This study found that, in addition to more accurate blood-screening practices, other practices needed to be adopted, such as limiting transfusions to life-saving situations, more effective control of malaria, and improved preventive health care for both children and pregnant women.<sup>10</sup>
- The percentage of hospital beds occupied by HIV-positive patients in Mama Yemo Hospital in Kinshasa was approximately 50 percent in 1995. This implies that it is becoming more and more difficult for patients with other illnesses to receive treatment, due to possible crowding out by HIV-positive patients.<sup>11</sup>
- **Transport.** The transport sector is especially vulnerable to AIDS and important to AIDS prevention. Building and maintaining transport infrastructure often involves sending teams of men away from their families for extended periods of time, increasing the likelihood of multiple sexual partners. The people who operate transport services (truck drivers, train crews, sailors) spend many days and nights away from their families. Most transport managers are highly trained professionals who are hard to replace if they die. Governments face the dilemma of improving transport as an essential element of national development while protecting the health of the workers and their families.
- **Mining.** The mining sector is a key source of foreign exchange for many countries. Most mining is conducted at sites far from population centers forcing workers to live apart from their families for extended periods of time. They often resort to commercial sex. Many become infected with HIV and spread that infection to their spouses and communities when they return home. Highly trained mining engineers can be very difficult to replace. As a result, a severe AIDS epidemic can seriously threaten mine production.
- In Congo, the effect of HIV/AIDS on the copper mining industry is projected to be strong, as skilled employees die and are difficult to replace. "The result will not be a sudden collapse in mine output. Rather there will be a slow but steady increase in the incidence of breakdown, accidents, delays and misjudgment, and output will suffer."<sup>12</sup>
- **Education.** AIDS affects the education sector in at least three ways: the supply of experienced teachers will be reduced by AIDS-related illness and death; children may

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<sup>10</sup> Jager, H, B N'Galy, J Perriens, K Nseka, F Davachi, C-M Kabeya, G Rauhaus, G Peyerl, RW Ryder, T Rehle. (1990) "Prevention of transfusion-associated HIV transmission in Kinshasa, Zaire: HIV screening is not enough," AIDS 1990, 4:571-74.

<sup>11</sup> Cited in World Bank (1997) *Confronting AIDS: Public Priorities in a Global Epidemic*. P. 194. Oxford University Press: New York, NY.

<sup>12</sup> Parkinson, P (1992) "Copper to 1995: Demand overcomes setbacks." Economist Intelligence Unit, London.

be kept out of school if they are needed at home to care for sick family members or to work in the fields; and children may drop out of school if their families can not afford school fees due to reduced household income as a result of an AIDS death. Another problem is that teenage children are especially susceptible to HIV infection. Therefore, the education system also faces a special challenge to educate students about AIDS and equip them to protect themselves.

- **Water.** Developing water resources in arid areas and controlling excess water during rainy periods requires highly skilled water engineers and constant maintenance of wells, dams, embankments, etc. The loss of even a small number of highly trained engineers can place entire water systems and significant investment at risk. These engineers may be especially susceptible to HIV because of the need to spend many nights away from their families.

### **Macroeconomic Impact of AIDS**

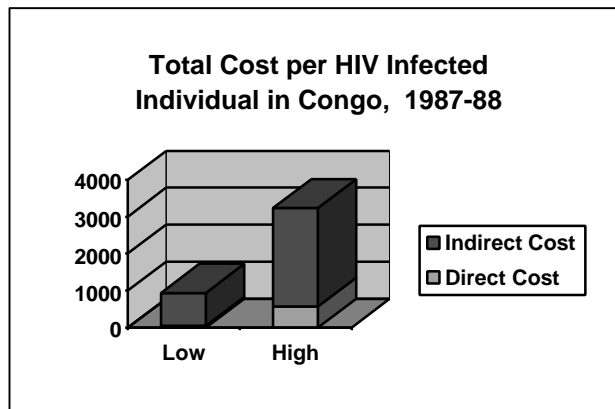
The macroeconomic impact of AIDS is difficult to assess. Most studies have found that estimates of the macroeconomic impacts are sensitive to assumptions about how AIDS affects savings and investment rates and whether AIDS affects the best-educated employees more than others. Few studies have been able to incorporate the impacts at the household and firm level in macroeconomic projections. Some studies have found that the impacts may be small, especially if there is a plentiful supply of excess labor and worker benefits are small.

There are several mechanisms by which AIDS affects macroeconomic performance.

- AIDS deaths lead directly to a reduction in the number of workers available. These deaths occur to workers in their most productive years. As younger, less experienced workers replace these experienced workers, worker productivity is reduced.
- A shortage of workers leads to higher wages, which leads to higher domestic production costs. Higher production costs lead to a loss of international competitiveness which can cause foreign exchange shortages.
- Lower government revenues and reduced private savings (because of greater health care expenditures and a loss of worker income) can cause a significant drop in savings and capital accumulation. This leads to slower employment creation in the formal sector, which is particularly capital intensive.
- Reduced worker productivity and investment leads to fewer jobs in the formal sector. As a result some workers will be pushed from high paying jobs in the formal sector to lower paying jobs in the informal sector.



- The overall impact of AIDS on the macro-economy is small at first but increases significantly over time.



- The total cost to care for an HIV-infected adult in Congo when both direct and indirect costs are included for low-cost sources is US\$936, while the cost for using private sources is US\$3230. Indirect costs include appropriately discounted years of healthy life lost, based on wage rates available at the time.<sup>13</sup>

- A recent study by the Harvard Institute of International Development estimated that the total cost to Congo by 1995 due to AIDS-associated deaths was US\$350 million, which was about 8 percent of GDP.<sup>14</sup>

### What Can Be Done?

AIDS has the potential to cause severe deterioration in the economic conditions of many countries. However, this is not inevitable. There is much that can be done now to keep the epidemic from getting worse and to mitigate the negative effects. Among the responses that are necessary are:

- **Prevent new infections.** The most effective response will be to support programs to reduce the number of new infections in the future. After more than a decade of research and pilot programs, we now know how to prevent most new infections. An effective national response should include information, education and communications; voluntary counseling and testing; condom promotion and availability; expanded and improved services to prevent and treat sexually transmitted diseases; and efforts to protect human rights and reduce stigma and discrimination. Governments, NGOs and the commercial sector, working together in a multi-sectoral effort can make a difference. Workplace-based programs can prevent new infections among experienced workers.
- Before an intervention providing free condoms, counseling, group discussions and treatment for STDs, only 11 percent of sex workers surveyed in Kinshasa

<sup>13</sup> Over, M S Bertozzi, J Chin, B N'Galy, K Nyamuryekung'e (1988) "The Direct and Indirect Cost of HIV Infection in Developing Countries: The Cases of Zaire and Tanzania." In Fleming, AF, M Carballo, DW FitzSimons, MR Bailey, and J Mann, ed. (1988) The Global Impact of AIDS. Alan R Liss, New York: NY.

<sup>14</sup> Cited in Ojo, K and M Delaney. (1997) "Economic and Demographic Consequences of AIDS in Namibia: Rapid Assessment of the Costs." International Journal of Health Planning and Management; 12: 315-326, 1997.

“occasionally” used condoms, with the majority using none at all. After the intervention, over 65% reported using condoms “consistently.” The number of new AIDS cases also dropped by two-thirds, compared with the number that was expected to occur. Thus the intervention was highly successful.<sup>15</sup>

- **Design major development projects appropriately.** Some major development activities may inadvertently facilitate the spread of HIV. Major construction projects often require large numbers of male workers to live apart from their families for extended periods of time, leading to increased opportunities for commercial sex. A World Bank-funded pipeline construction project in Cameroon was redesigned to avoid this problem by creating special villages where workers could live with their families. Special prevention programs can be put in place from the very beginning in projects such as mines or new ports where commercial sex might be expected to flourish.
- **Programs to address specific problems.** Special programs can mitigate the impact of AIDS by addressing some of the most severe problems. Reduced school fees can help children from poor families and AIDS orphans stay in school longer and avoid deterioration in the education level of the workforce. Tax benefits or other incentives for training can encourage firms to maintain worker productivity in spite of the loss of experienced workers.
- **Mitigate the effects of AIDS on poverty.** The impacts of AIDS on households can be reduced to some extent by publicly funded programs to address the most severe problems. Such programs have included home care for people with HIV/AIDS, support for the basic needs of the households coping with AIDS, foster care for AIDS orphans, food programs for children and support for educational expenses. Such programs can help families and particularly children survive some of the consequences of an adult AIDS death that occur when families are poor or become poor as a result of the costs of AIDS.

*A strong political commitment to the fight against AIDS is crucial. Countries that have shown the most success, such as Uganda, Thailand and Senegal, all have strong support from the top political leaders. This support is critical for several reasons. First, it sets the stage for an open approach to AIDS that helps to reduce the stigma and discrimination that often hamper prevention efforts. Second, it facilitates a multi-sectoral approach by making it clear that the fight against AIDS is a national priority. Third, it signals to individuals and community organizations involved in the AIDS programs that their efforts are appreciated and valued. Finally, it ensures that the program will receive an appropriate share of national and international donor resources to fund important programs.*

*Perhaps the most important role for the government in the fight against AIDS is to ensure an open and supportive environment for effective programs. Governments need to make*

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<sup>15</sup> Ainsworth, M (1998) “Setting Government Priorities in Preventing HIV/AIDS,” Finance and Development: March 1998, pp. 18-21.

*AIDS a national priority, not a problem to be avoided. By stimulating and supporting a broad multi-sectoral approach that includes all segments of society, governments can create the conditions in which prevention, care and mitigation programs can succeed and protect the country's future development prospects.*